

U.S. Patent Application Serial No. 09/988,252
Response dated June 21, 2004
Reply to OA of January 23, 2004

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently Amended): A method of forming a conductive pattern, comprising the steps of:

(1a) applying a positive thermosensitive paste composition containing a conductive powder and a heat-fusible inorganic powder to a substrate, followed by drying, to form a positive thermosensitive coating;

(2a) irradiating the coating directly with an infrared laser beam so as to obtain a desired pattern; [[and]]

(3a) removing the irradiated part of the coating by development to form a conductive pattern coating; and

(4a) calcining the conductive pattern coating.

Claims 2-5 (Canceled)

Claim 6 (Currently Amended): A method according to Claim [[5]] 1, wherein the heat-fusible inorganic powder is a glass frit.

Claim 7 (Currently Amended): A method of forming a conductive pattern, comprising the steps of:

(1b) applying a positive thermosensitive paste composition containing a conductive powder and a heat-fusible inorganic powder to a surface of release film, followed by drying, to form a dry film having a positive thermosensitive layer;

(2b) superimposing the dry film onto a substrate in such a manner that the surface of the positive thermosensitive layer is in contact with the substrate, to form a positive thermosensitive coating, and then peeling off the release film;

(3b) irradiating the coating directly with infrared laser beam so as to obtain a desired pattern; [[and]]

(4b) removing the irradiated part of the coating by development to form a conductive pattern coating; and

(5b) calcining the conductive pattern coating.

Claims 8-11 (Canceled)

Claim 12 (Currently Amended): A method according to Claim [[11]] 7, wherein the heat-fusible inorganic powder is a glass frit.

Claim 13 (Currently Amended): A method of forming a conductive pattern, comprising the steps of:

(1c) applying a positive thermosensitive paste composition containing a conductive powder and a heat-fusible inorganic powder to a surface of release film, followed by drying, to form a dry film having a positive thermosensitive layer;

(2c) superimposing the dry film onto a substrate in such a manner that the surface of the positive, energy-sensitive layer is in contact with the substrate, to form a positive thermosensitive coating;

(3c) irradiating the coating through the release film with an infrared laser beam so as to obtain a desired pattern; [[and]]

(4c) peeling off the release film, and removing the irradiated part of the coating by development to form a conductive pattern coating; and

(5c) calcining the conductive pattern coating.

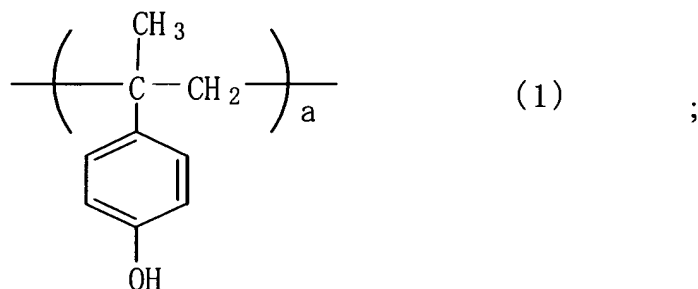
Claims 14-17 (Canceled)

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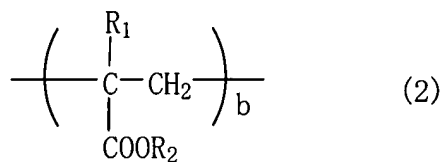
Claim 18 (Currently Amended): A method according to Claim ~~[[17]]~~ 13, wherein the heat-fusible inorganic powder is a glass frit.

Claim 19 (Previously Presented): A method according to Claim 1, wherein the positive thermosensitive paste composition comprises a thermosensitive resin, an ether linkage-containing olefinic unsaturated compound, a thermal acid generator and a conductive powder, the thermosensitive resin being a copolymer having:

a structural unit represented by Formula (1)



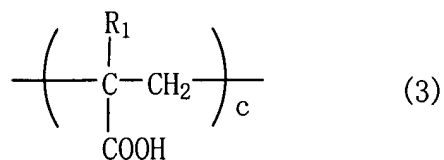
a structural unit represented by Formula (2)



wherein R_1 is hydrogen or methyl, R_2 is C_1 to C_6 linear or branched unsubstituted alkyl or C_1 to C_6

linear or branched substituted alkyl; and

a structural unit represented by Formula (3)

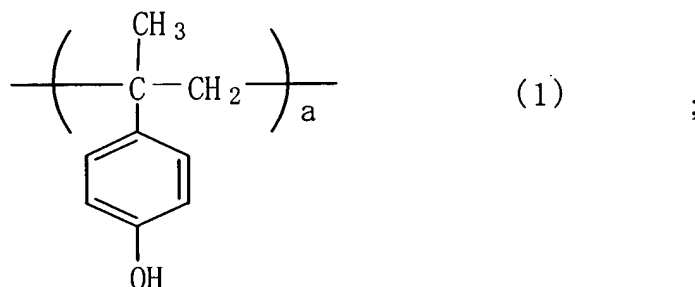


wherein R_1 is hydrogen or methyl;

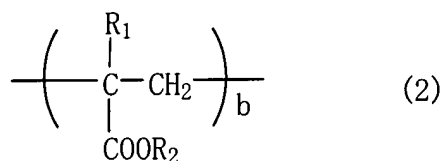
the molar proportions of the structural units being $a=0.05$ to 0.7 , $b=0.15$ to 0.8 and $c=0.01$ to 0.5 and the sum of a , b and c being 1 .

Claim 20 (Previously Presented): A method according to Claim 7, wherein the positive thermosensitive paste composition comprises a thermosensitive resin, an ether linkage-containing olefinic unsaturated compound, a thermal acid generator and a conductive powder, the thermosensitive resin being a copolymer having:

a structural unit represented by Formula (1)

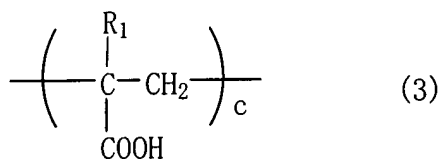


a structural unit represented by Formula (2)



wherein R₁ is hydrogen or methyl, R₂ is C₁ to C₆ linear or branched unsubstituted alkyl or C₁ to C₆ linear or branched substituted alkyl; and

a structural unit represented by Formula (3)

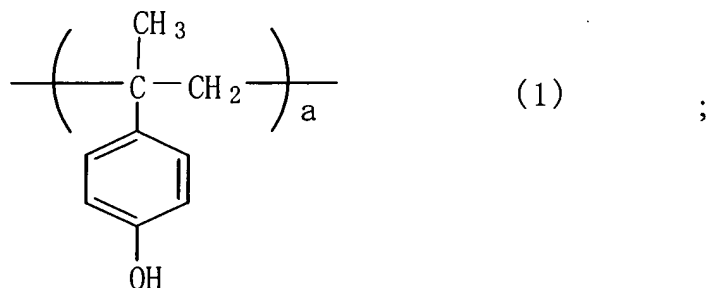


wherein R₁ is hydrogen or methyl; the molar proportions of the structural units being a=0.05 to 0.7, b=0.15 to 0.8 and c=0.01 to 0.5 and the sum of a, b and c being 1.

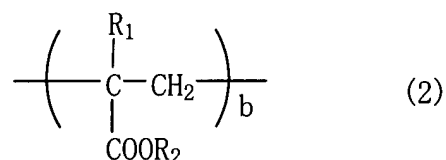
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Claim 21 (Previously Presented): A method according Claim 13, wherein the positive thermosensitive paste composition comprises a thermosensitive resin, an ether linkage-containing olefinic unsaturated compound, a thermal acid generator and a conductive powder,
the thermosensitive resin being a copolymer having:

a structural unit represented by Formula (1)

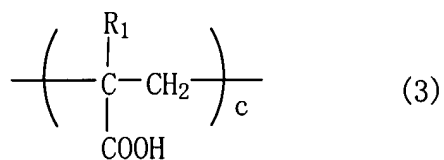


a structural unit represented by Formula (2)



wherein R₁ is hydrogen or methyl, R₂ is C₁ to C₆ linear or branched unsubstituted alkyl or C₁ to C₆ linear or branched substituted alkyl; and

a structural unit represented by Formula (3)



wherein R₁ is hydrogen or methyl; the molar proportions of the structural units being a=0.05 to 0.7, b=0.15 to 0.8 and c=0.01 to 0.5 and the sum of a, b and c being 1.